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Applicant: Nippon Telegraph and Telephone Corporation

[Title Of The Invention]

A mounting device for superconductive element

[Claims]

A mounting device for superconductive element, wherein at least one guide pin which performs its duties of a guide when the micro-pin set up in the foot in each neighborhood at the end of top and bottom in the foot supported wire card mounting superconductive element is inserted into the micro-socket corresponded to a micro-socket board, and the guide pin is inserted into the socket for the guide pin in the above micro socket board, and the pin tip part projected from that micro-socket board is fixed by the maintenance ingredient.

[Detailed Description of the Invention]

This invention relates to the mounting device for superconductive element which the card with wiring mounted multiple josephson tips are fixed to the micro-socket board through foot with many micro-pins.

The Figure 1 is the appearance squint figure of the conventional type of the device. 1 is a silicone board (micro-socket board) formed multiple micro-sockets, 101 is a micro-socket, 2 is a silicone foot with micro pins, 201 is a micro pin, 3 is a silicone card (with wiring) mounted josephson tips, 4 is a josephson tip, 5 is a card shelf made of silicone, and 501 is a guide grooves for inserting the card.

It thinks that the card shelf 5 made of the silicone never falls because it is stucked to the silicone board and fixed by inserted silicone card shelf 5 in the position when the silicone card 3 and the silicone foot 2 with micro pin is inserted through the guide groove for inserting the card.

However, as for the above composition wherein the josephson tips are formed on the silicone substrate, it is needed that the card shelf 5 is made of the silicone board as well as other things to avoid the distortion or destruction of the structure by the difference in heat rate of expansion when it is dipped into the liquid helium.

The groove width is needed to adjacent to the thickness dimension of the card 3, and it was very difficult to set up a guide groove 501 and the one related to the position of the micro-socket precisely when it was fixed on the silicone board 1 with groove formation processing being difficult to play the part of the maintenance after it is inserted with a guide groove 501 being a guide in the card insertion, too.

Furthermore, though much higher density mounting will be expected in the future, much shelf composition is necessary in one module, and there is above in the problem as well that the weight of the module increases only with the one for shelf so far by the composition.

As far as this invention improves such a usual fault and that purpose can be able to be done, it is easy, and it is in making installation to the micro-socket board of the silicone card possible with light weight structure. It explains about the following execution example in detail.

The 2nd figure is the structure figure of 1 execution example device of this invention,

and the same sign shows the same part, and a socket for the guide pin and 8 are the board springs of the special form for the guide pin fixation with 6 with a guide pin with the groove, 7 with the 1st figure 601.

A tip part has a guide pin 6 chamfered in the hemisphere or the cone-shaped in the same figure, and that parallel department has enough thickness with the length that it goes the silicone board 1 when a micro-pin 201 is completely inserted into the micro-socket 101 the inside. This at least 1 and more guide pin 6 are fixed on everyone in the neighborhood at the end over and under the silicone foot 2 with adhesive and so on.

As for the micro-pin insertion to the micro-socket 101 of the silicone board 1, it is inserted into the socket 7 for the guide pin that a guide pin 6 is set up in the silicone board 1 first, and an up-down guide pin is inserted together, and the tip of the micro-pin 201 is decided to be inserted into the micro-socket 101 under the condition that a board side and a foot side become parallel.

Therefore, it becomes the thing which can insert a micro-pin 201 into the micro-socket 101 easily. Then, a hole 801 in the big board spring 8 is inserted into the groove 601 at the tip of the guide pin 6 which projected from the board after the micro-pin insertion, and it is the next, and a groove 601 is inserted into the small hole 802 of the board spring 8, and a fixation is finished. A silicone board 3 is attached by it is held securely through the foot 2, the guide pin 6 in the silicone board 1.

The 3rd figure is the structure figure which shows another execution example of this invention, and the same sign shows the same part, and taper hole, 9 are taper pin with 602 with the 2nd figure. Thin taper hole 602 which exchanged in the tip part that it projected from the board 1 of the guide pin 6 in the shaft of the guide pin was set up, and taper pin 9 was inserted into this hole 602, and this execution example fixed both.

The 4th figure is the structure figure which shows another execution example of this invention, and the same sign shows the same part, and a coil spring and 11 are small-sized screws with 603 with the female screw part that it is given to the guide pin tip part, and 10 with the 2nd figure. The thin female screw department 603 of the same shaft was held at the tip of the guide pin 6, and a coil spring 10 was set on the circumference of the guide pin 6, and this execution example was forced by Small screw which thrust a coil spring 10 at the tip of the guide pin, and it fixed a guide pin 6 and a silicone board 1.

The 5th figure is the structure figure which shows execution examples besides this invention, and 12 is a silicone rubber ring, and the same sign shows the same part with the 2nd figure. This execution example fixed a guide pin 6 and board 1 by setting the silicone rubber ring 12 whose diameter dimension was less than a guide pin nominal diameter small in the part where it projected from the board 1 of the guide pin 6 and pressing this against the board 1.

It is made to have a function as a fixed ingredient, too, by the device for superconductivity element mounting of this invention giving the guide pin which becomes a guide to insert the micro-pin of many which were set up in silicone foot into the micro-socket various small processing to understand from the above explanation, and it doesn't need to make a structure for the maintenance such as shelf newly, and there is an advantage that light weight is made in the safe assembling body.

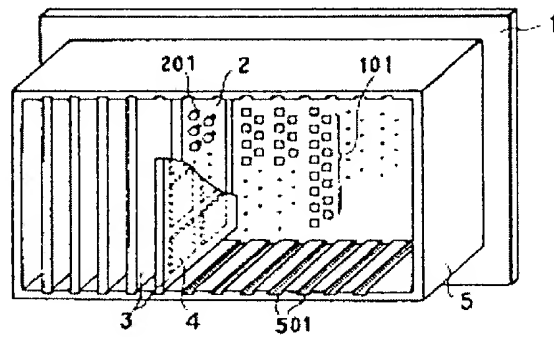
Still, the way that a guide pin in this invention fixes it isn't limited to the example which was above mentioned, and you may fix it by the board spring, the taper pin and the maintenance ingredient of silicone rubber ring same others if a guide pin can be fixed on

the silicone board.

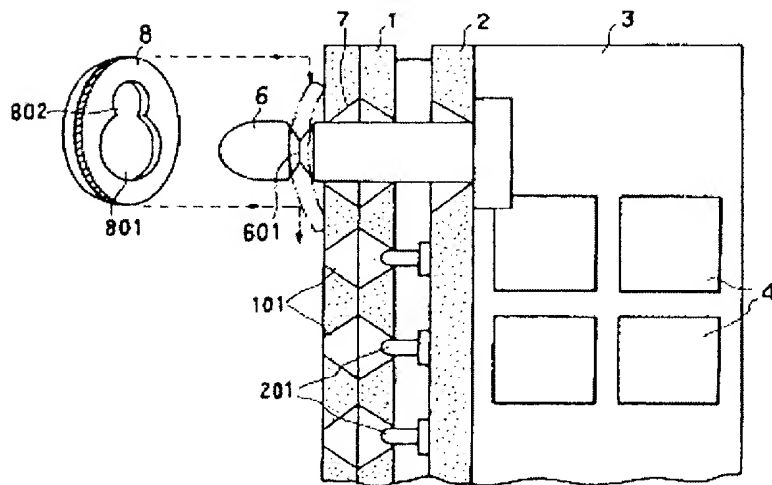
[Brief Description of the Drawings]

The first figure is the structure figure of the example that as for the appearance squint figure of the usual device for superconductivity element mounting and the second figure - the fifth figure, this invention is respectively different.

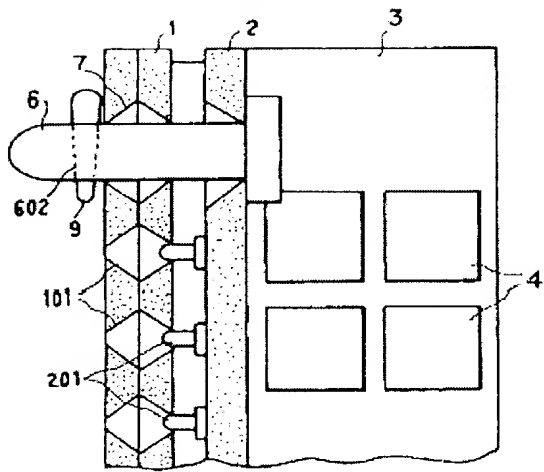
第 1 图



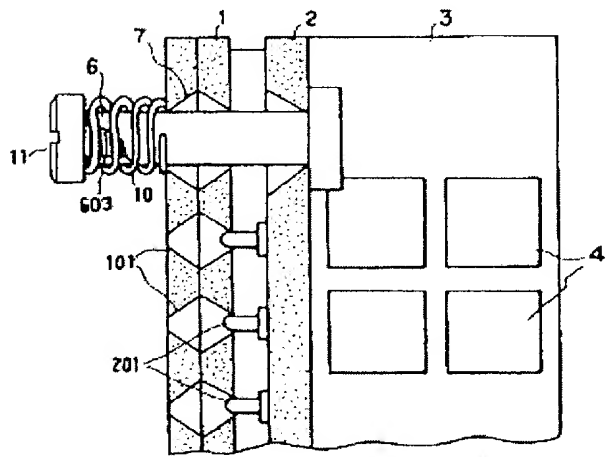
第 2 图



第 3 圖



第 4 圖



第 5 圖

